REMARKS

Claims 21 and 23-30 remain pending in this application. Claims 1-20, 28, and 31-40 are cancelled. Claims 41-46 are new and are supported by specification paragraph [0034]. Claim 21 is amended. Applicants respectfully request that the Examiner withdraw the rejection of the pending claims 21, 23-27, and 29-30 in light of the amendments made herein and the analysis below.

Claims 21, 23-26, and 29 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,696,059 (Onan). Applicants respectfully traverse this rejection. *Onan* is directed to a method of cementing in a well using a foamed cement composition that reduces stress failures by increasing the elasticity of the set cement. The *Onan* composition can not be formed without a foaming agent and 5-75 percent gas present in the formed foamed composition.

Onan suggests that the foamed cement composition has a reduced number of fractures by emphasizing the elastic properties of the foamed cement composition which can "resist and/or absorb the stresses exerted on it" (col. 2, 66-67; col. 3, 10). Elasticity implies stretching, expanding, springing, and rebounding to an original shape; elasticity does not imply breaking or fracturing in a non-linear manner. *Onan*'s elastic properties derive from the use of gas to form foam, wherein the "gas must be present in an amount sufficient to provide the necessary deformation and elasticity properties" (col. 4, 22-26). The deformation properties of the foamed composition are not described. However, it is not expected that a foamed composition comprising 5-75 percent gas would fracture in a non-linear manner because the fracture intersects intentionally formed foam gas bubbles. The foam fracture pattern is not comparable to the non-linear manner that is exhibited

when a composition fractures from particle boundary to particle boundary. Also, a fracture surface that includes smooth surfaces generated by the presence of a foam gas bubble is possibly too smooth to be considered non-linear.

Furthermore, *Onan* does not teach or suggest that low reactivity particles in the range of 40-250 mesh are present at a concentration of about 30 weight percent to about 100 weight percent, based on the weight of the cement (i.e. that the particles are in a 0.3:1 to 1:1 weight ratio with the cement).

Furthermore, *Onan* does not teach or suggest the formation of any interfacial transition zone around its foam gas bubble. No variation in composition or other property is suggested by *Onan*.

Onan does not teach, show, or suggest providing a cement composition comprising water, cement, and low reactivity particles, wherein the particles have a size of about 40 mesh to about 250 mesh and are present at a concentration of about 30 weight percent to about 100 weight percent based on the weight of the cement, pumping the composition into the oil or gas well, and allowing the composition to set, wherein interfacial transition zones are formed around the low reactivity particles for non-linear fractures to form between particle boundaries, as recited in amended claim 21 and claims 23-26 and 29 dependent therefrom. Applicants respectfully request withdrawal of the rejection.

Claims 21, 24, 26, and 28-30 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,090,561 (Powell). Applicants respectfully traverse this rejection. *Powell* is directed to a method of displacing drilling mud surrounding a well pipe by cement slurry containing large particles. The sand in the cement slurry has

particle sizes commensurate with 10 to 20 mesh for tests and particles in the range of 8 to 40 mesh may be used (col. 3, 32-35).

Furthermore, *Powell* does not teach or suggest that low reactivity particles in the range of 40-250 mesh are present at a concentration of about 30 weight percent to about 100 weight percent, based on the weight of the cement (i.e. that the particles are in a 0.3:1 to 1:1 weight ratio with the cement).

Powell does not teach, show, or suggest providing a cement composition comprising water, cement, and low reactivity particles, wherein the particles have a size of about 40 mesh to about 250 mesh and are present at a concentration of about 30 weight percent to about 100 weight percent based on the weight of the cement, pumping the composition into the oil or gas well, and allowing the composition to set, wherein interfacial transition zones are formed around the low reactivity particles for non-linear fractures to form between particle boundaries, as recited in amended claim 21 and claims 24, 26, and 29-30 dependent therefrom. Applicants respectfully request withdrawal of the rejection.

Claims 21, 27, and 28 are rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,556,109 (Eilers). Applicants respectfully traverse this rejection. *Eilers* is directed to a method of cementing geothermal wells by using a slurry of coal-filled furfuryl alcohol, furfural, and/or a low molecular weight polymer thereof.

One skilled in the art would not be motivated to use the coal-filled cement slurry as described in the *Eilers* reference in an oil or gas well. Geothermal and geopressure wells have different temperature and pressure conditions and utilize cement with different fracture issues than do oil or gas wells. Particularly, the formations surrounding the well

are different for a geothermal well than for an oil well. The *Eilers* reference suggests as much when it states that Portland cements are "unsatisfactory in cementing geothermal wells because such wells are generally produced in a fractured and/or incompetent formation" (col. 2, 23-26).

Eilers uses crushed coal because it is "much more economic than carbon black as a filler" in the cement slurries and because "the crushed coal has a higher heat capacity which mitigates the adverse effects of the polymerization exotherm" by which fural polymers are obtained (col. 2, 52-58). Crushed coal is used rather than carbon black because it is "easier to form the slurry from the crushed coal" (col. 2, 56-58). The amount and type of coal used in the slurries can be varied, "so long as a pumpable slurry is obtained" (col. 2, 66-68). The particle size of the crushed coal can vary also, "so long as a pumpable slurry is achieved" (col. 3, 11-13). Futhermore, using crushed coal for the polymerization of furfural alcohol and/or furfural aldehydes to obtain fural polymers is not suggested by *Eilers* as a method to modify cement fracture properties.

Furthermore, *Eilers* does not teach or suggest that low reactivity particles in the range of 40-250 mesh are present at a concentration of about 30 weight percent to about 100 weight percent, based on the weight of the cement (i.e. that the particles are in a 0.3:1 to 1:1 weight ratio with the cement).

Eilers does not teach, show, or suggest providing a cement composition comprising water, cement, and low reactivity particles, wherein the particles have a size of about 40 mesh to about 250 mesh and are present at a concentration of about 30 weight percent to about 100 weight percent based on the weight of the cement, pumping the composition into the oil or gas well, and allowing the composition to set, wherein

interfacial transition zones are formed around the low reactivity particles for non-linear fractures to form between particle boundaries, as recited in amended claim 21 and claim 27 dependent therefrom. Applicants respectfully request withdrawal of the rejection.

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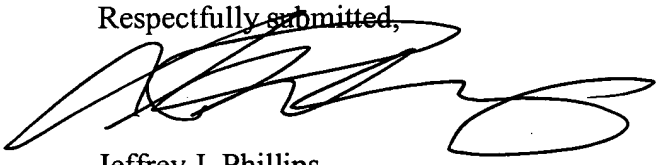
Applicants believe that the present pending claims are in condition for allowance. Applicants respectfully request that the Examiner reconsider the rejection of the pending claims in light of the above analysis.

Applicants request that the Examiner directly contact the undersigned attorney by telephone at 713-787-1496 to facilitate the allowance of the claims.

Respectfully submitted,



Jeffrey J. Phillips
Reg. No. 51,125
Customer No. 23369
ATTORNEY FOR ASSIGNEE,
BJ SERVICES COMPANY

Howrey LLP
2941 Fairview Park Drive, Box 7
Falls Church, VA 22042
Phone: (713) 787-1400
Fax: (703) 336-6950

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